Space Weather Forecast

Issued on Thursday, 19 January 2023 at 00:34 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Further Minor/Moderate Radio Blackouts likely. Chance of G1/Minor Geomagnetic Storms through to day 3 (21 Jan).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate over the past 24 hours, with one Moderate-class flare, originating from the largest and most complex region on the disc in the southeast. There is also a large region in the northeast which retains some magnetic complexity. The remaining six regions appear stable for now with some regions showing signs of fading. No new Earth-directed CMEs have been observed in available coronagraph imagery.
Solar Wind / Geomagnetic Activity: The solar wind speeds were slightly elevated around 430 km/s. The Interplanetary Magnetic Field was moderate at first slowly easing back to weak. The north-south component varied weakly. Geomagnetic activity was Active between 18/0000-0600 UTC, thereafter Quiet.
Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be moderate, with a slight chance of reaching high levels, with two large and complex sunspot regions on the visible disc.
Solar Wind / Geomagnetic Activity: Solar wind speeds are slightly elevated around 430 km/s, however, a CME that was launched from the Sun on 14 January may give a glancing blow early on Day 1 (19 Jan), with wind speeds up to around 500 km/s possible. A further coronal hole fast wind may connect with Earth during Day 2 (20 Jan) into day 3 (21 Jan), this could potentially increase solar wind speeds to around 600 km/s. Winds should ease back on day 4 (22 Jan) Geomagnetic activity is expected to be Quiet to Unsettled with Active intervals and a Chance of G1/Minor Storm intervals through to day 3 (21 Jan), lowering to a slight chance on day 4 (22 Jan) as fast wind and CME influences begin to wane.
Energetic Particles / Solar Radiation: Solar radiation will most likely remain at background levels, but with a slight chance of enhancements to S1 or greater through the period, in association with any larger flares.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	40	30	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	60	60	60
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	15	15
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2023. All Rights Reserved.